RESOURCE NOTES

VegSpec: Creating Vegetative Designs

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Background

Public land managers are often tasked with habitat improvement, restoration or reclamation efforts that require well designed vegetative plantings. VegSpec is a web-based decision support application that assists land managers in the planning and design of vegetative establishment practices. VegSpec utilizes soil, plant, and climate data to select plant species that are (1) site-specifically adapted, (2) suitable for the selected purposes and objectives for which the planting is intended. Incorporating a horticultural database of over 2500 plants and specific climate and soils information, the VegSpec application has the ability to determine site-specific adaptability of plant species. VegSpec helps revegetation projects succeed by reducing costs and improving plant selection for the site and objectives desired.

VegSpec can create planting designs for a wide variety of site conditions and uses:

- Replanting after flood or wildfire
- Establishing trees and shrubs for windbreaks, shelterbelts, or visual screening
- Establishing pastures and haylands
- Planting grazing- and trampling-resistant species on heavy use sites
- Reclaiming damaged or deteriorated lands
- Restoring native plant communities and wetlands
- Creating or rehabilitating wildlife habitat
- Controlling erosion
- Replanting roadsides and construction sites

VegSpec is available free on the internet through the U.S. Department of Agriculture PLANTS website - ***http://plants.usda.gov.*** In order to run the VegSpec 3.10 application, your computer must meet several requirements. The VegSpec application module requires Java enabled Netscape 4.06, or Internet Explorer 4.0, or higher. It is possible to download the appropriate browser versions from either the Netscape or Internet Explorer home site.

Information Needed

The following narrative will guide a potential user through the steps necessary to develop a planting design. Before beginning though, you will need certain information. You must gather information about your site's soil characteristics including soil type, Soil Survey Area ID, Soil Map Unit, and slope. Additionally, you must obtain location information and climate data. It is important to know the dimensions of your site as well as preliminary techniques you plan to use in the revegetation of your site.

Starting VegSpec

To begin using VegSpec, open the PLANTS homepage in an internet browser and click on the VegSpec icon. Point your mouse to the top menu bar of the VegSpec homepage and select Starting VegSpec. Additional subtopic and informational links are available above the menu bar. After starting VegSpec, you will be asked to review and accept the terms of a disclaimer. VegSpec contains two options for approaching a planting design: site-specific and general information. You will be required to select one of these options. The Site Specific option narrows plant choices by state, MLRA, soil, and climate data. Site-specific information is the recommended method for planting design since the vegetative list is more user-specific and regionally accurate. Users may also select the General option for a generalized plant list. In order to obtain an appropriate list of plants, users must select a Plant Adaption Zone under the Soil Attributes Suboption. Note: The Planting Deign section is not available in this option. ***Click ok*** to enter the system.

A page labeled Site Description is the first section of the VegSpec application. If you have selected the recommended site-specific approach, you must enter your state, soils (Soil Survey Area ID and Soil Map Unit), and climate information before continuing to another section. If this section is not fully completed, warnings will appear. If you have selected the general approach, this section need not be completed before selecting a subsequent section. However, the Planting Design section is not available in the general approach, and the resulting plant list can be longer than the site-specific approach.

The Objectives section allows you to select an applicable vegetative practice and appropriate purposes for your site. It is important to select a vegetative practice to help narrow your final plant list. After selecting a practice, a list of purposes is displayed. You can optionally select 1 or more purposes; click on Accept Purpose, and a list of subpurposes will appear. You may also enter other optional selections such as plant characteristics. The more options you choose, the shorter an more regionally accurate your plant list will be. However, choosing too many options may not return any plant species. Start with a no or few options, then add options later to see how the list of recommended species is reduced.

Following a completed Objectives section, the Select Plants allows you to select applicable plants from a "Potential Plants" list. The plants listed are based on the vegetative choices you

have designated. Click on the applicable plants for your site (use Ctrl+click for multiple plants). Click on the arrows to move the selected plants from the "Potential Plants" list to the "User Selected Plants" list.

The Planting Design section is available for vegetative calculation and plant design specifications if you have selected the site-specific approach. This section is NOT available if you have selected the general approach. The load time for this Java program can take 1-5 minutes, depending on internet traffic and connection speed.

Within the Planting Design section, there are six tabular vegetative choices. Each calculates a planting design based on several user-defined parameters. The tabular choices are:

- Plant Materials
- Seeding Calculation
- Planting Calculation
- Windbreak
- Site Specification
- Planting Specification

Plant Materials provides applicable plant material options such as container, bareroot, or seed. These options are dependent on your vegetative choices. Select a plant material for each species from the drop-down fields provided.

Seeding Calculation provides a determination of your total needs for how many seeds per acre your vegetative site will need. You can mix percentages for different compatible plants, but the mix % should total 100% for accurate calculations. To begin the calculation, enter the amount of "Acres to Seed" and press Tab. Choose a seeding method - either Drill or Broadcast. If you select "Drill", enter the spacing in inches. Select a "Seeding Rate Calculation Method". In the Species table, enter the "Mix%" and press Tab. The remaining fields populate automatically. Finally, click on Sum to calculate all plant total fields across the bottom of the screen.

Planting Calculation determines the rate per acre and total number of plants needed between and/or within planting rows depending on whether you are performing a Mixed or Pure Planting. For example, select Mixed Planting and press Tab. Select yes to designate between row and within row pacing differently. Enter the amount of acres to be planted and press Tab. Enter the "Mixture %" in the Species table and press Tab. Enter the "User entered Rate/Acre". Finally, enter the between row spacing in the column labeled "Btw Row(ft)". The remaining fields populate automatically.

Windbreak determines the total plants needed for your user-specified windbreak design. Begin by entering "Windbreak length (feet)" and press Tab. Select a plant listed in the drop-down field. Enter a "Plant Plan" in feet and a total number of plants needed is calculated for you. Select Add Row to add another plant.

Site Specification allows you to designate seedbed preparation methods and temporary cover. Simply select all the seed bed methods that apply to your site. If you are using temporary cover, identify the appropriate plant annual cover from the drop-down list.

Planting Specification allows you to determine any special planting material treatments. Click on Additional Planting Specifications and a dialog box will appear where you can designate different planting treatments.

A VegSpec report will generate as a product of your vegetative practice options. Reports are user customized. Your report displays your vegetative options with data tables, site specification tips, and planting calculations.

Step-by-step guides for using VegSpec can be found on the homepage under

Help: General: Printing VegSpec Documentation. These guides contain example screens of input and results.

Conclusion

VegSpec is a decision support tool for creating a planting design. Simply gather information about your *site's* soil type, climate, and slope before you begin. Enter the site information and select the appropriate use for the site. Select the site-specific options and enter user-defined parameters when prompted. VegSpec then creates a planting design with recommendations for propagule treatments, planting dates, and seed placement, prepares a report, and increases the effectiveness of your vegetative project.

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